7. Donor limb vascular events following femoro-femoral bypass surgery. A Veterans Affairs Cooperative Study. Arch Surg 1991;126:681-5; discussion: 685-6.
8. Giles KA, Wyers MC, Pomposelli FB, Hamdan AD, Ching YA, Schermerhorn ML. The impact of body mass index on perioperative outcomes of open and endovascular abdominal aortic aneurysm repair from the National Surgical Quality Improvement Program, 2005-2007. J Vasc Surg 2010;52:1471-7.
9. Maynar M, Zander T, Qian Z, Rostagno R, Llorens R, Zerolo I, et al. Bifurcated endoprosthesis for treatment of aortoiliac occlusive lesions. J Endovasc Ther 2005;12:22-7.
10. Zander T, Blasco O, Rabellino M, Baldi S, Sanabria E, Llorens R, et al. Bifurcated endograft in aortoiliac type C and D lesions: long-term results. J Vasc Interv Radiol 2011;22:1124-30.
11. Clouse WD, Brewster DC, Marone LK, Cambria RP, Lamuraglia GM, Watkins MT, et al. Durability of aortouniiliac endografting with femorofemoral crossover: 4-year experience in the Evt/Guidant trials. J Vasc Surg 2003;37:1142-9.
12. Carpenter JP, Neschis DG, Fairman RM, Barker CF, Golden MA, Velazquez OC, et al. Failure of endovascular abdominal aortic aneurysm graft limbs. J Vasc Surg 2001;33:296-302; discussion: 302-3.
13. Hinchliffe RJ, Alric P, Wenham PW, Hopkinson BR. Durability of femorofemoral bypass grafting after aortouniiliac endovascular aneurysm repair. J Vasc Surg 2003;38:498-503.
14. Schneider JR, Besso SR, Walsh DB, Zwolak RM, Cronenwett JL. Femorofemoral versus aortobifemoral bypass: outcome and hemodynamic results. J Vasc Surg 1994;19:43-55; discussion: 55-7.
15. Foster MC, Mikulin T, Hopkinson BR, Makin GS. A review of 155 extra-anatomic bypass grafts. Ann R Coll Surg Engl 1986;68:216-8.
16. Karch LA, Hodgson KJ, Mattos MA, Bohannon WT, Ramsey DE, McLafferty RB. Adverse consequences of internal iliac artery occlusion during endovascular repair of abdominal aortic aneurysms. J Vasc Surg 2000;32:676-83.
17. Schlösser FJ, Verhagen HJ, Lin PH, Verhoeven EL, van Herwaarden JA, Moll FL, et al. TEVAR following prior abdominal aortic aneurysm surgery: increased risk of neurological deficit. J Vasc Surg 2009;49:308-14; discussion: 314.
18. Carpenter JP, Baum RA, Barker CF, Golden MA, Mitchell ME, Velazquez OC, et al. Impact of exclusion criteria on patient selection for endovascular abdominal aortic aneurysm repair. J Vasc Surg 2001;34:1050-4.
19. Allaire E, Melliere D, Poussier B, Kobeiter H, Desgranges P, Becquemin JP. Iliac artery rupture during balloon dilatation: what treatment? Ann Vasc Surg 2003;17:306-14.
20. Gandini R, Fabiano S, Chiocchi M, Chiappa R, Simonetti G. Percutaneous treatment in iliac artery occlusion: long-term results. Cardiovasc Intervent Radiol 2008;31:1069-76.

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DISCUSSION

Dr Samuel Money (*Scottsdale, Ariz*). I thank the authors for sending me a copy of their manuscript well before this meeting. The manuscript by Vallabhaneni and coauthors describes recanalizing chronic occlusions of the iliac system to facilitate placement of devices for endovascular aneurysm repair (EVAR). It is quite an interesting paper and quite an interesting concept. I have numerous questions. My first question regards the actual incidence of this occurring. You describe 14 patients at three very busy tertiary care institutions over a 7-year period. How many total EVARs were performed at these institutions, and how many were turned down? You talk about 14 patients. Are we talking 1% of the total population with abdominal aortic aneurysm (AAA) population, 2%, or 10%? It seems to me that this is a very, very small percentage of patients; however, I would ask you to just sort of share with us what percentage you really think this would be.

Another question: What was the mean size of your AAAs? You describe a range from 3.1 to 7.6 with a mean of 5.1 cm. Clearly, these are smaller aneurysms than one would expect; however, I believe some patients were treated because of their occlusive disease. Can you please delineate on the fact that your average aneurysm size was 5.1 cm?

You discuss one patient who had a ruptured external iliac. As salvage for the bleeding you placed a covered stent. Did you then have enough diameter to pass the endograft up with the Viabahn in place? Or, did you place the endograft while there was still some oozing and then place the Viabahn? My guess is you probably used this as the contralateral limb, is this so?

My next question involves the use of additional bare-metal stents. Did you use these? Frequently, when we place an endograft, it lays in an area of unusual tortuosity or in an area of such severe calcification that ballooning just does not help. We found that we have probably reduced our iliac limb occlusions by placing a self-expanding stent and sort of smoothing out the abrupt angulation. I was wondering if you used any bare-metal stents in these cases?

My final question complements you on this superb paper and I just ask you to hypothesize about the long-term results. Do you think that this will be as successful long-term or will more patients need what we call "touch-up procedures?" Thank you very much. I appreciate discussing this paper.

Dr Ehab E. Sorial. Thank you. In reference to the first question, the actual incidence or the occurrence of this iliac occlusion in the setting of aortic aneurysm is based on our institution, the University of Kentucky. I would say we do approximately 70 EVARs a year. It is hard to basically say how many of them had occluded iliacs. One of the flaws of the study is that we did not identify all patients who had iliac occlusions receiving open or endovascular repair. It was not a randomized trial. All that we looked at were patients who had iliac occlusions and aneurysms who underwent EVAR placement. So I would guess the range is about 2% to 5% to have the iliac occlusion and the aneurysm at the same time, but that is a guess.

In reference to the second question, most of these patients underwent EVAR placement for an aneurysm size >5 cm. The few patients that underwent aneurysm repair <5 cm are because of claudication symptoms or because of their aneurysm being symptomatic.

The third question was regarding the iliac rupture that required placement of an external iliac Viabahn stent. The ruptured iliac in this patient happened after recanalizing his left side and after placement of main body of the aortic graft from the right side. Basically, trying to dilate the left external iliac with a bigger balloon is when it ruptured. So the Viabahn stent was placed and extended to the contralateral gate so at that time we already had the main body of the aortic graft placed from the contralateral side.

Regarding the use of bare-metal stents, we use them occasionally for the distal part of the iliac limb at the tortuosity area just to tack the graft down so that it does not begin "bird's beaking" or just does not lift up, but in those patients, we used them just because of the occlusive disease the patient had.

Successful long-term results? I speculate that possibly it will be a good option for a lot of patients, especially if we can recanalize the iliacs. We have just a few years of follow-up on those patients, but I expect it is going to be a successful long-term outcome for these patients. Thank you.